



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/077,180	02/15/2002	Fred C. Hiatt	2437.09US04	2768

24113 7590 07/13/2005

PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.  
4800 IDS CENTER  
80 SOUTH 8TH STREET  
MINNEAPOLIS, MN 55402-2100

EXAMINER

TUGBANG, ANTHONY D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/077,180

Applicant(s)

HIATT ET AL.

Examiner

A. Dexter Tugbang

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 11-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 and 11-27 is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/5/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of the invention of Group I, Claims 1-8 and 11-27, in the reply filed on 4/26/05 is acknowledged.

NOTE: Applicant(s) have canceled non-elected Claims 9-10. An action on the merits of Claims 1-8 and 11-27 now follows.

### ***Specification***

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: A Method of Manufacturing an Ultra-Miniature Magnetic Device.

### ***Claim Objections***

3. Claims 1, 5, 11, 15, 25 and 26 are objected to because of the following informalities. The following changes are suggested to merely correct informalities with the claim language. The changes in no way affect the scope of the claimed invention.

In Claim 1, --the-- should be inserted before "first partial" (line 8).

In Claim 5, --first-- should be inserted before "interlayer" (line 2).

In Claim 11, --the-- should be inserted before "first partial" (line 8).

In Claim 15, --first-- should be inserted before "interlayer" (line 2).

Art Unit: 3729

In Claim 25, the phrase of --of depositing said layer of magnetic core material and depositing said layer of dielectric material-- should be inserted before “until” (line 3).

In Claim 26, the phrase of “a layer” (line 1) should be replaced with --said layer--.

Appropriate correction is required.

***Allowable Subject Matter***

4. Claims 1-8 and 11-27 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter.

Regarding Claim(s) 1, 11 and 20, the prior art does not teach all of the limitations of the claimed invention including patterning a third photoresist layer disposed over the magnetic core arrangement and the second photoresist layer to form via holes co-linear with the first partial via structures, and forming second partial via structures within the co-linear via holes that are connected to the first partial via structures.

Regarding Claim(s) 19, the prior art does not teach all of the limitations of the claimed invention including patterning a first photoresist layer to form a plurality of via holes, patterning a second photoresist layer disposed over the magnetic core arrangement and the first partial via structures to form via holes co-linear with the first partial via structures, and forming second partial via structures within the co-linear via holes that are connected to the first partial via structures.

The closest prior reference representative of the above claimed features is directed to Alford et al (U. S. Patent 6,008,102). Alford teaches making a magnetic device with at least forming first, second and third photoresist layers 308, 408, 416. However, in the first photoresist

Art Unit: 3729

layer 308, Alford only forms one, single via hole (see Fig. 3) and one, single, first partial via structure 404. Alford does not form more than one via hole in the first photoresist layer and does not form more than one first partial via structure. In the second photoresist layer 408 of Alford, a plurality of via holes 410 are formed and second partial via structures 412 (in Fig. 6) are formed within the via holes. However, the via holes in the second photoresist layer 408 are not co-linear with the first partial via structures in the first photoresist layer because only one, single first partial via is formed in the first photoresist layer, which is offset from the via holes in the second photoresist layer and is also offset from the second partial via structures. Additionally, Alford forms a third photoresist layer 416 (in Fig. 8). However, Alford only forms one, single via hole in the third photoresist layer and not more than one via hole. Thus, the via hole in the third photoresist layer is not co-linear with the second partial via structures.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. This application is in condition for allowance except for the following formal matters.

To address the issues with the Claim Objections and Specification as noted above.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

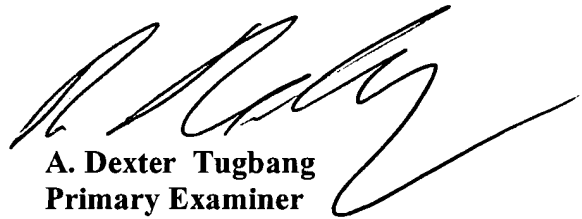
Art Unit: 3729

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570.

The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

July 11, 2005